

TABLE 2. PERCENTAGE OF TOPKILLED *Encelia farinosa* SPROUTING IN OCTOBER 1981 AND PERCENTAGE OF REGENERATED *E. farinosa* PRODUCED BY SPROUTS (SPROUTS/SPROUTS AND SEEDLINGS) IN FEBRUARY 1983 ON DIFFERENT SLOPE ASPECTS.

Slope aspect	October 1981		February 1983	
	n	% sprouting	n	% sprouts
North	44	29.6	13	77.0
South	52	3.9	120	4.2
East	184	7.1	120	7.5
West	72	8.3	120	6.7

The percentages of seedlings on the south, east, and west exposures were 4 times that of the northern aspect. Numerous seedlings of *S. mellifera* were observed on north-facing postburn slopes in February 1983.

Hanes (1971) previously reported *Encelia farinosa* as a nonsprouter. However, it is apparent that sprouting does occur and varies with slope aspect. He proposed that sprouters may have an advantage on mesic sites (north exposure) when compared with more xeric sites (south exposure) because of lower fire temperature and less shrub death due to cooler and moister conditions. Since death of shrubs above ground would be greater on the xeric southern exposure, reproduction would then be more advantageous by seeding versus sprouting (Hanes 1971, Howe and Carothers 1980). Although the postburn density of *Encelia* on the south exposure was less than that observed on east and west exposures, the fraction of seedlings was higher.

*Encelia farinosa* could be categorized as a weakly-sprouting species because only 4–30% of the topkilled shrubs in this study regenerated by crown sprouting, compared to 12–100% in sprouting chaparral species reported by Keeley and Keeley (1981). However, unlike chaparral, the percentage of topkilled shrubs that sprout in coastal sage scrub varies greatly with fire intensity (Westman, Ecology 62:170–184. 1981a; Westman, USDA For. Serv. Gen. Techn. Rep. PSW-58. 1981b; Westman et al. 1981). More intense fires suppress shrub sprouting, whereas more frequent fires favor shrub sprouting by lowering fuel loads and fire intensities (Westman 1981a). *Salvia mellifera*, which is known to sprout (Westman 1981a; Westman et al. 1981; Gray, Madroño 30:43–49. 1983), was not sprouting in this particular burn. This indicates that fire intensity was severe enough that levels of sprouting *E. farinosa* could have been higher than 30% had fire intensity been less.

Survival of *E. farinosa* on all slope aspects of coastal sage scrub communities is a result of its drought tolerance and its ability to recover from fire. However, the likelihood of recovery from sprouts is greater on the cooler more mesic sites, and less on the hotter more xeric sites.—BRADFORD D. MARTIN, Department of Biology, Loma Linda University, Loma Linda, CA 92350. (Received 11 May 1983; accepted 27 Dec 1983.)

*Ipomopsis pinnata* (POLEMONIACEAE) IN THE UNITED STATES.—Examination of herbarium specimens (GH, NMC, NY, US) indicates that *Gilia campylantha* Woot. & Standl. is conspecific with the Mexican species *Ipomopsis pinnata* (Cav.) V. Grant.

A new collection of was made ca. 25 km n. of the type locality of *Gilia campylantha*:

New Mexico. Hidalgo Co., Animas Peak (T31S R19W S29), 2460 m, *Soreng and Salazar 1916*, 22 Sep 1982 (NMC, TEX). It was determined as *Ipomopsis pinnata* by V. Grant. About 100 plants were noted in openings of a Douglas fir-gambel oak community. This new collection represents the first certain record of *G. campylantha* in the United States, and it matches the type well. This taxon was previously known only from the type collection made by Mearns in the San Luis Mts. 90 years ago. Mearns' collection was made near the present international boundary, but from which side is not known. However, my recent exploration of these mountains indicates Mearns was probably working in the San Luis Mts. in Mexico when he found this species and several other taxa not known from the United States. In the relatively small, low portion of the range extending into the United States there does not appear to be suitable habitat for many of Mearns' records.

These collections of *Gilia campylantha* (now *Ipomopsis pinnata*) occur at the northern end of the range of *I. pinnata*, a western Sierra Madrean species. *Ipomopsis pinnata* was until now known only from Mexico, in the states of Durango, Hidalgo, Nuevo Leon, San Luis Potosí, Mexico, and Tlaxcala, reaching nw. Chihuahua, 260 km south of the United States border. The occurrence of disjunct populations of Mexican species in the southwestern United States is a frequent pattern.

Wooton and Standley, in describing *Gilia campylantha*, suggested that their new species was similar to "*G. glomeriflora*" Benth. (= *Ipomopsis pinnata*), but that it had a "very different calyx." No consistent difference in calyx, or vegetative features, was observed in comparisons of our specimen with the type of *G. campylantha*, and with specimens of *I. pinnata* from Mexico. Specimens of these taxa exhibit a tubular corolla (ca. 10 mm long) with an abrupt sigmoid bend in the lower half of the tube. Corolla color, as described in the literature, is white, but varies to pale violet in some herbarium collections, and in our collection was creamy and tinged with purple on the tube. In both taxa stamens have filaments shorter than, or equal to, the anthers, and are arranged in the tube from just above the ovary to near the mouth, but none are at all exerted. Styles are ca. 1–2 mm long, and stigmas are positioned adjacent to the lowest anther in the tube. Leaves are nearly all pinnately lobed. There may be abundant glandular, multicellular hairs on the stems and leaves, or the hairs may be mostly glandular, and there is a tendency towards glabrescence in age. The singular floral morphology binds these two taxa together and distinguishes *I. pinnata* from other congeners.

IPOMOPSIS PINNATA (Cav.) V. Grant, *Aliso* vol. 3:357. 1956.—*Phlox pinnata* Cav., *Icones* 6: t. 528, 1801.

*Gilia campylantha* Woot. & Standl., *U.S. Natl. Herb.* 16:160. 1913.—TYPE: Cyn. e. side San Luis Mts., 11 Sep 1893, *E. A. Mearns 2242* (Holotype: US!; isotype: DS).—*Ipomopsis campylantha* (Woot. & Standl.) Martin & Hutchins, *A Flora of New Mexico* 2:1580. 1981 (without citation of protolog), *nomen nudum*.

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